Analysis of antipsychotic prescription patterns and anticholinergic drugs in patients with schizophrenia

Lopamudra Mishra[1], Lizasmita Patel[1], Neha Bhatia[1]

[1]*Rourkela Senior Nursing College, Sambalpur University, Odisha, India.*

Corresponding Author: bhatianeha757@gmail.com

Abstract: Schizophrenia is one of the top 15 causes of health burden in the world. The characteristics of its clinical presentation are positive and negative symptoms and cognitive impairment. In recent years, the goal of treatment for schizophrenia has been recovery, which requires improvement in the level of functioning, including cognitive dysfunction. Antipsychotic medication is the mainstay for managing schizophrenia, and psychosocial treatments, including cognitive-behavioural therapy, social skills training, assertive community treatment, supported employment, occupational therapy, and teaching illness, are helpful as well. Atypical antipsychotics, which have less adverse effects and potentially have superior effects on the negative and cognitive symptoms compared with the typical antipsychotics, were introduced in the 1990s and have become the first-line drugs for the treatment for schizophrenia. In spite of the superiority and wide distribution of the atypical antipsychotics, clinicians often attempt experimental use of high atypical antipsychotic doses, antipsychotic polypharmacy or augmentation in clinical practice hoping for early and robust responses when faced with patients having severe and disabling symptoms.

Key Words: —A*ntipsychotic, Schizophrenia, disabling symptoms.*

I. INTRODUCTION

Naturally, the patterns of antipsychotic prescription vary from country to country and are likely to be influenced by their respective health-care policies, preferred treatment modalities, cost and the availability of drugs [1]. However, the antipsychotic prescribing pattern seemed to change with time. A previous study conducted at a university hospital in Korea revealed that a significant proportional increase of atypical agents was prescribed in 2009-2010 compared to 2003-2004 and 1997. And there was also a significant proportional increase in patients receiving two or more antipsychotics across a decade [2]. Work is now in progress to study the coprescription of other psychotropic drugs, especially benzodiazepines, mood stabilizers, and other relevant drugs with antipsychotics. To date, only a few articles have been published regarding prescription patterns for schizophrenia patients in East Asian countries, and no studies have investigated nationwide prescription patterns specifically for these patients in India [3].

Manuscript revised August 24, 2022; accepted August 25, 2022. Date of publication August 27, 2022.

This paper available online at www.ijprse.com

ISSN (Online): 2582-7898; SJIF: 5.59

The information obtained will assist psychiatrists to make sound clinical judgments regarding the appropriate antipsychotic medications for an individual. Furthermore, clinical evidence concerning Korean schizophrenic patients with specific clinical circumstances and cultural customs will aid in the development of proper therapeutic strategies for this particular population [4]. Work is now in progress to study the coprescription of other psychotropic drugs, especially benzodiazepines, mood stabilizers, and other relevant drugs with antipsychotics. most patients with psychosis have been prescribed a combination of medications at some point but the treatment periods were relatively short, corresponding to 14% of the total time of antipsychotics treatment, apart from anti-parkinsonism drugs [5]. To date, only a few articles have been published regarding prescription patterns for schizophrenia patients in East Asian countries, and no studies have investigated nationwide prescription patterns specifically for these patients. The information obtained will assist psychiatrists to make sound clinical judgments regarding the appropriate antipsychotic medications for an individual. Furthermore, clinical evidence concerning Korean schizophrenic patients with specific clinical circumstances and cultural customs will aid in the development of proper therapeutic strategies for this particular population [6]. A study of this nature will also gather data about prescription

patterns across the decades and establish a basis for future research investigating schizophrenia. Thus, the present study aimed to investigate prescription patterns in patients with schizophrenia using data from multiple centers, with a particular focus on antipsychotic polypharmacy and the combination of atypical antipsychotics with other psychotropic drugs [7].

II. METHODS

We integrated and retrospectively reviewed the data of three studies involving 41 tertiary university hospitals and 8 secondary hospitals. These three studies are the Paliperidone ER Effectiveness Study to Evaluate the Objective Symptom Change and Symptomatic Remission. Excluding the 27 patients who did not take the antipsychotic drug on screening, a total of 851 patients were included in this study. We reviewed the antipsychotics and other psychotropic drugs prescribed at the time of screening for the three studies mentioned above. We determined the rate of antipsychotic polypharmacy, antipsychotic class combination with special focus on atypical antipsychotics, the rate of psychotropic polypharmacy using benzodiazepines, mood stabilizers, and other relevant drugs [8]. The doses of the antipsychotics were converted to chlorpromazine equivalents. There is no clear consensus on the definition of polypharmacy. We focused on antipsychotic polypharmacy and psychotropic polypharmacy in this article by applying the concept of antipsychotic polypharmacy [8-10].

III. RESULTS

The original three studies from which the present date was gathered were conducted on males and females between the ages of 18 and 65 who were diagnosed with schizophrenia in accordance based on criteria in the Diagnostic and Statistical Manual of Mental Disorders fourth edition. Patients were divided into two groups according to their prescribed antipsychotics; the polypharmacy group or the monotherapy group. To identify predictors of antipsychotic polypharmacy, stepwise backward elimination logistic regression analyses were conducted with any characteristic that was significantly different at a level of $p<0.1$ between the two groups was entered into the model; namely, duration of illness, CGI-SCH-S-Positive score, PSP score, and occupation status. Patients in the polypharmacy group had a significantly longer duration of illness ($p=0.001$) and a higher unemployed status ($p=0.018$) than patients in the antipsychotic monotherapy group. No statistically significant differences were detected in relation to the sex, age, education, body mass index, or hospitalization between the groups. The most common psychotropic drugs other than antipsychotics that were prescribed to Korean patients with schizophrenia were benzodiazepines (n=258, 30.3%), anticholinergic drugs (n=245, 28.8%), antidepressants (n=113, 13.3%), β-blockers (n=86, 10.1%), and mood stabilizers (n=74, 8.7%). A greater rate of co-prescription for benzodiazepines, mood stabilizers, antidepressants, and anticholinergic drugs, but not β-blockers, was observed.

Table.1. Indication wise use of different antipsychotics.

Drugs	**Psychotics disorders**	**Bipolar disorders**	**Depressive disorders**	**Anxiety**
Fluphenazine	2	22	23	2
Amisulpride	3	11	22	3
Haloperidol	6	23	11	5
Trifluoperazine	5	16	14	7
Quetiapine	6	3	15	1
Clozapine	5	4	17	3
Aripiprazole	12	11	12	5
Olanzapine	54	32	21	6
Risperidone	60	24	32	9

IV. DISCUSSION

The results of this study show that anticholinergics were prescribed in approximately 30% of the considered patients with schizophrenia, which is similar to previous studies. In Japan, when anticholinergic drugs are used for schizophrenia patients, biperiden is often prescribed [11]. To our knowledge, there is no clear evidence showing that biperiden is more effective or has fewer side effects than other anticholinergics. Biperiden was also the drug of choice in a previous study of the effects of anticholinergic drug reduction on cognitive

function in Japanese patients with schizophrenia [12]. In this study, we divided the doses into high and normal doses and compared them across hospitals. The results of this study showed that hospitals with a higher frequency of anticholinergic usage had higher rates of anticholinergic prescription for both high and normal doses. Alternatively, rather than being the effect of antipsychotic dosage, the output may be more due to the prescribing habits of each hospital. Approximately 20% of patients were prescribed antipsychotic polypharmacy, and this treatment regimen was associated with a longer duration of illness, more severe positive symptoms, and poorer social function [13]. Furthermore, the tendency to use atypical antipsychotic polypharmacy may be due to the increased availability of newer antipsychotics or the changing pattern of prescriptions in recent years [14]. The authors highlighted these differences in prescription patterns as well as the under-utilization of atypical antipsychotic drugs in East Asia compared with the United States, which is inconsistent with the results of the present study. Recently, the range of choices for antipsychotic medication has been broadened for clinicians and patients as newer antipsychotics become available. This enables patients to receive a greater percentage of atypical antipsychotic prescriptions as those being treated with typical antipsychotics are switched to atypical antipsychotics. Another remarkable finding from the present study is the marked change in the antipsychotic prescription pattern over a relatively short period of time. Therefore, the therapeutic guidelines directing the prescription of drugs for schizophrenic patients should undergo frequent review as new drugs enter the Indian market [15]. In the present study, 8.7% of patients were co-prescribed mood stabilizers along with antipsychotics with the most frequent being valproate, then lithium, carbamazepine, and lamotrigine. The utilization of mood stabilizers is lower in Europe and Asia compared to in North America, possibly due to the use of different medications to address similar symptoms and various side effects in different regions [16]. It has been noted that Asian clinicians utilize other antipsychotics to treat residual/acute symptoms while aggression and hostility are treated with benzodiazepines or low-potency first-generation antipsychotics by European clinicians and mood stabilizers by North American clinicians.

V. Conclusion

The present study had several limitations. First, the original three studies were not designed with the intention to identify prescription patterns in a real-world setting but rather to assess the effects of switching antipsychotic medications. Patients taking certain antipsychotics, including clozapine and long-acting injections, were excluded from the current study, as were patients with the possibility of suicidal thoughts or aggression [17-19]. Most of the patients were moderately ill but could voluntarily agree to participate in the study continually. It is quite possible that there was a selection bias due to the inclusion and exclusion criteria of the original studies and, thus, the generalizability of the results may be limited. Second, this study was based on cross-sectional research regarding antipsychotic prescription patterns. Consequently, the present study was unable to discriminate continuous antipsychotic polypharmacy from temporary antipsychotic polypharmacy during a cross-titration period. Additional studies will be needed to reflect the longitudinal definitions of antipsychotic polypharmacy. Third, information concerning psychopathology and adverse effects were not included. Despite these limitations, the present study demonstrated that little is known regarding the prescription patterns of antipsychotic medications and other psychotropic drugs in schizophrenic patients [20].

References

[1]. Sadock BJ, Sadock VA, Sussman N. General Principles of Psychopharmacology in Kaplan and Sadock's pocket handbook of psychiatric drug treatment, Philadelphia, Lipincott Williams and Wilkins, 2006; p.1-22.
[2]. Padmini DD, Kumar R, Guido S. Prescription patterns of psychotropic drugs in hospitalized schizophrenic patients in a tertiary care hospital. Calicut Med J 2007;5: e3.
[3]. Trivedi JK, Dhyani M, Yadav VS, Rai SB. Anti-psychotic drug prescription pattern for schizophrenia: Observation from a general hospital psychiatry unit. Indian J Psychiatry 2010; 52:279.
[4]. Weinbrenner S, Assion HJ, Stargardt T, Busse R, Juckel G. Drug prescription patterns in schizophrenia outpatients: analysis of data from a German health insurance fund. Pharmacopsychiatry 2009; 42:66-71.
[5]. Khalid AJAK, Mohammed KAH, Reginald PS, Adel RAO. Antipsychotic and anticholinergic drug prescribing pattern in psychiatry: extent of evidence- based practice in Bahrain. Pharmacol Pharma 2012; 3:409-16.
[6]. Grover S, Avasthi A. Anti-psychotic prescription pattern: A preliminary survey of Psychiatrists in India. Indian J Psychiatry 2010; 52:257-9.
[7]. Shrivastava A, Johnston M, Terpstra K, Stitt L, Shah N. A typical antipsychotics usage in long-term follow-up of first episode schizophrenia. Indian J Psychiatry 2012; 54:248-52.

[8]. Ghosh S, Bhattacharyya S, Dalai CK. Antipsychotic prescribing pattern in a tertiary care hospital of Eastern India. J Drug Deliv Ther 2013; 3:38-42.
[9]. De Vries TPGM, Henning RH, Hogerzeil HV, Fresle DA. Guide to Good Prescribing. A practical manual. Geneva: World Health Organisation.1994;113.
[10]. Sim K, Su A, Fujii S, Yang S, Chong M. Antipsychotic polypharmacy in patients with schizophrenia: a multicentre comparative study in East Asia. Br J Clin Pharmacol 2004; 58:178-83.
[11]. Cuevas C, Sanz EJ. Polypharmacy in psychiatric practice in Canary Islands. BMC Psychiatry 2004; 4:1-8.
[12]. Mortimer A, Shepherd C, Rymer M, Burrows A. Primary care use of antipsychotic drugs: an audit and intervention study. Ann General Psychiatry 2005; 4:1-8.
[13]. Paton C, Lelliot P, Harrington M, Okocha C, Sensky T. Pattern of antipsychotic and anticholinergic prescribing for hospital inpatients. J Psychopharmacol 2003; 17:223-29.
[14]. Chong M, Tan C, Fujii S, Yang S, Ungvari G. Psychiary and clinical Neurosciences 2004;58:6167.
[15]. Freudenreich O, Goff DC. Antipsychotic combination therapy in schizophrenia. A review of efficacy and risks of current combinations. Acta Psychiatr Scand 2002; 106:323-30.
[16]. Linton A. A retrospective study of antipsychotic drug switching in a pediatric population. BMC Psychiatry 2013; 13:248.
[17]. Kharadi D, Patel K, Rana D, Patel V. Off-label drug use in Psychiatry Outpatient Department: A prospective study at a Tertiary Care Teaching Hospital. J Basic Clin Pharma 2015; 6:45-9.
[18]. Deshmukh SA, Ismail TS. Evaluation of psychotropic drugs use pattern among out patients attending psychiatry department at Government Medical College and Hospital, Nagpur: A cross sectional study. Int J Pharm Bio Sci 2012; 3:428-36.
[19]. How to Investigate Drug Use in Health Facilities: Selected Drug Use Indicators - EDM Research Series No. 007.
[20]. Remington G, Chue P, Stip E, Kopala L, Girard T. The crossover approach to switching antipsychotics: what is the evidence? Schizophr Res 2005; 76:267–72.